

REMARKS

Claims 1 and 2 are pending, and have been amended. Support for the amendments can be found in the original disclosure, and therefore no new matter has been added. Claim 1 is in independent form.

In the final Office Action dated January 13, 2004, Claims 1 and 2 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,592,200 (*Kaneko*) in view of JP 59-192573 (*JP '573*) and JP 3-7350 (*JP '350*). In the Advisory Action dated May 12, 2004, the Examiner stated that the claims as presented in the Response to Office Action dated April 13, 2004 still read on the prior art cited in the Office Action dated January 13, 2004. Without conceding the propriety of the rejection, Applicants submit that the claims as currently amended are patentable over the above-identified references, at least for the reasons set forth below.

One feature of the invention as set forth in independent Claim 1 is a liquid bag that has first and second sides opposed to each other, the first side being rigidly held, at least partly, on an inner surface of the housing, while the second side is made freely movable, and the first side facing in a direction opposite to the direction of gravity (i.e., facing upward) and the second side facing in the direction of gravity (i.e., facing downward) when a liquid container is mounted in the apparatus.

By rigidly holding the upper side of the liquid bag, while making the lower side freely movable, a stable negative pressure may be generated in the liquid ejection head for the duration of an ink supplying period. Liquid bag 3 having its upper side rigidly held, at least partly, on an inner surface of housing 4, while its lower side is made freely movable, is

illustrated, for example, in Fig. 1, and the stable negative pressure is illustrated, for example, in Fig. 4. In contrast, the prior art device, in which the lower side of the liquid bag is rigidly held and the upper side is freely movable, is illustrated in Fig. 2, and the change in pressure generated in the head by such a prior art device as ink is consumed is illustrated in Fig. 5. As shown in Figs. 4 and 5 and explained, for example, at page 22, lines 6-11 of the original specification, the internal pressure of a liquid ejection head such as is recited in Claim 1 changes only within a range of about 20 mm H₂O, as compared to a range of about 60 mm H₂O for the prior art device. The stable pressure of the liquid ejection head of Claim 1 permits increased carriage speed and thus high-speed printing.

Kaneko relates to an ink jet apparatus capable of practicing an improved recovery operation. Applicants submit that, as conceded by the Office Action, nothing in *Kaneko* would teach or suggest a liquid bag that has first and second sides opposed to each other, the first side being rigidly held, at least partly, on an inner surface of a housing, while the second side is made freely movable, and the first side facing in a direction opposite to the direction of gravity (i.e., facing upward) and the second side facing in the direction of gravity (i.e., facing downward) when a liquid container is mounted in the apparatus.

JP '573 relates to a detector for a residual amount of ink. As shown in Fig. 4, one end of a position-detecting lever 26 is turnably fitted to a support member 25 fixed to an upper part of a carriage 20, while the other end of lever 26 is brought into contact with an ink bag 1 through opening parts of the carriage provided in an upper part thereof. As the amount of ink in the ink bag is consumed, the lever turns, eventually triggering a photo-interrupter (28, 28'). However, as shown in Fig. 4, the upper side of the ink bag is not rigidly held, at least partly, on

an inner surface of a housing; rather, that side freely moves downward as ink is consumed. Also, the lower side of the ink bag is seen to be held and not freely movable. Applicants submit that nothing in *JP '573* would teach or suggest a liquid bag that has first and second sides opposed to each other, the first side being rigidly held, at least partly, on an inner surface of a housing, while the second side is made freely movable, and the first side facing in a direction opposite to the direction of gravity (i.e., facing upward) and the second side facing in the direction of gravity (i.e., facing downward) when a liquid container is mounted in the apparatus.

JP '350 relates to an ink cartridge. As shown in Fig. 2, ink cartridge case 10 has disposed therein an ink bag 1 in its lower portion and a waste recovery ink bag 6 in its upper portion, directly above ink bag 1. A detecting plate 5 is disposed at the top surface of ink bag 1 and configured to move downward as the ink in ink bag 1 is consumed so that, when most or all of the ink is consumed, projection 5a of detector plate 5 comes into contact with detector 30. However, as shown in Fig. 2, the upper side of the ink bag is not rigidly held, at least partly, on an inner surface of a housing. Rather, the upper side of the ink bag is not even adjacent to the housing, but is adjacent to waste recovery ink bag 6, and the upper side of the ink bag freely moves downward as ink is consumed. Also, the lower side of the ink bag is seen to be held and not freely movable. Applicants submit that nothing in *JP '350* would teach or suggest a liquid bag that has first and second sides opposed to each other, the first side being rigidly held, at least partly, on an inner surface of a housing, while the second side is made freely movable, and the first side facing in a direction opposite to the direction of gravity (i.e., facing upward) and the second side facing in the direction of gravity (i.e., facing downward) when a liquid container is mounted in the apparatus.

The Office Action (page 3) contends that *JP '350 (Kitahara)* teaches a detector (30) placed at a lower part of the cartridge (20), and that rearranging the position of the detecting means would have been obvious and is considered to be a matter of a mechanical design expedient. Without conceding the propriety of these contentions, Applicants submit that, even if they were true, the arrangement in which the rigidly held side of the liquid bag is at the top and the freely movable side of the liquid bag is at the bottom is not obvious or a matter of design expedience, but rather provides an advantage of improved performance in comparison with the reverse arrangement of the prior art, as explained above.

Since none of the above-discussed references, whether taken singly or in combination (even assuming, for the sake of argument, that such combination were permissible), contains all of the elements of independent Claim 1, that claim is believed allowable over those references.

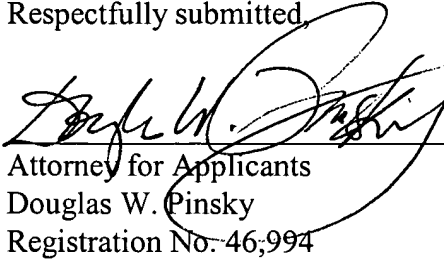
A review of the other art of record, including U.S. Patent No. 4,604,633 (*Kimura et al.*), has failed to reveal anything which, in Applicants' opinion, would remedy the deficiencies of the art discussed above, as references against independent Claim 1. That claim is therefore believed patentable over the art of record.

Claim 2 is in dependent from independent Claim 1 and is therefore believed patentable for at least the same reasons. Since Claim 2 is also deemed to define an additional aspect of the invention, however, the individual reconsideration of the patentability of that claim on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, Applicants respectfully request favorable reconsideration and early passage to issue of the present application.

Applicants' undersigned attorney may be reached in our Washington, D.C. Office by telephone at (202) 530-1010. All correspondence should continue to be directed to our below-listed address.

Respectfully submitted,



Attorney for Applicants
Douglas W. Pinsky
Registration No. 46,994

FITZPATRICK, CELLA, HARPER & SCINTO
30 Rockefeller Plaza
New York, New York 10112-3801
Facsimile: (212) 218-2200
DWP/tmc